REMARKS

By the foregoing Amendment, Claims 1, 11, 14, 23, 33 and 36 are amended and Claims 8-10, 19, 20, 30-32, 42 and 43 are cancelled. Entry of the Amendment, and favorable consideration thereof, is earnestly requested. Claims 1-7, 11-18, 21-29, 33-41, 44 and 45 remain pending.

Claims 1, 3-13, 23 and 25-35 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application No. 2003/0029680 to Ralea et al. Claims 2, 14-22, 24 and 36-45 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ralea et al. in view of U.S. Patent No. 4,852,699 to Karnopp et al. Applicant respectfully asks the Examiner to reconsider these rejections in view of the above Amendments and the below Remarks.

The present invention is directed to a system for controlling application of an electronically controlled brake which obviates many of the problems associated with prior art brake control systems which rely on undesirable types of sensor feedback in determining when to, and to what extent to, cause application of the brake actuator. To this end, all claims require, among other elements, (i) a position sensor which produces a current position signal indicative of a current position a moveable brake component, (ii) a position indicative command indicative of a commanded position to which the at least one moveable brake component is to be moved in order to achieve a demanded level of braking, and (iii) a brake controller which causes application of a brake actuator based at least in part upon a comparison of the position indicative command with the current position signal.

Moreover, all claims have been amended to further require a very specific algorithm for determining the position indicative command based upon a

commanded brake torque indicative of a demanded level of braking. More specifically, all claims now require the following: (A) that the commanded brake torque be converted into a commanded friction force by dividing the commanded brake torque with an effective disc brake radius, (B) that the commanded friction force be converted into a commanded clamping force by dividing the commanded friction force by a disc/pad friction coefficient, and (C) that the commanded clamping force be converted into a position indicative command either: (i) by employing a known relationship between brake pad position versus clamping force, or (ii) by dividing the commanded clamping force by a brake elasticity and adding a slack position. Applicant respectfully submits that these limitations are not disclosed, taught or suggested by either of the cited prior art references, nor any other prior art of which Applicant is aware.

Ralea et al. discloses only that the required position can be calculated using the torque tube spring constant, as well as the full force command, as follows:

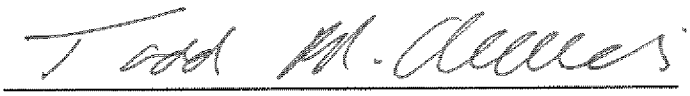
> [0068] As will be evident to the skilled person, brake clamp application relies on the spring constant of the brake torque tube since brake clamp force is a function of the actuator ram displacement and the torque tube spring constant. When applying a clamping force, the brake controller calculates the required position for given clamping force using the torque tube spring constant as the proportional constant. The value for the torque tube constant can be the theoretical value or can be directly measured by the system using a calibration routine running as an extension of the running clearance calibration routine. That is, the spring constant calibration routine can measure the ram displacement, ΔX, for each ram, for a full force command, $\Delta Force$, and calculate the spring constant, given by $\Delta X/\Delta Force$.

No mention is made whatsoever of the very precise algorithm employed by the present invention for determining the position indicative command based upon a commanded brake torque indicative of a demanded level of braking, as now required by all claims.

Additionally, Karnopp et al. does not even hint at such an algorithm, and indeed is cited only for its teachings of a self-energizing brake actuator.

For the foregoing reasons, Applicant respectfully submits that all pending claims, namely Claims 1-7, 11-18, 21-29, 33-41, 44 and 45, are patentable over the references of record, and earnestly solicits allowance of the same.

Respectfully submitted,



Wesley W. Whitmyer, Jr., Reg. No. 33,558
Todd M. Oberdick, Reg. No. 44,268
ST. ONGE STEWARD JOHNSTON & REENS LLC
986 Bedford Street
Stamford, Connecticut 06905-5619
(203) 324-6155
Attorneys for Applicant